CANADIAN GEOGRAPHICAL JOURNAL

MARCH
1942

VOL. XXIV
NO. 3

"CANADA'S AIRCRAFT INDUSTRY"

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CANADIAN GEOGRAPHICAL JOURNAL

Published monthly by
The Canadian Geographical Society
at 2151 Ontario St. E., Montreal

Editor – *Gordon M. Dallyn*

This magazine is dedicated to the interpretation, in authentic and popular form, with extensive illustrations, of geography in its widest sense, first of Canada, then of the rest of the British Commonwealth, and other parts of the world in which Canada has special interest.

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The articles in this Journal are indexed in the *Reader's Guide to Periodical Literature* which may be found in any public library.

The British standard of spelling is adopted substantially as used by the Dominion Government and taught in most Canadian schools, the precise authority being the Oxford Dictionary as edited in 1936.

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Address all communications regarding change of address, non-delivery of Journal, etc., to the publication office, 2151 Ontario Street, East, Montreal, Canada, giving old and new address. On all new memberships, the expiry date will be printed on wrapper containing starting number. This will constitute a receipt for subscription.

Membership in The Canadian Geographical Society is $3.00 per year in Canada and other parts of the British Empire, which includes delivery of the Journal, postpaid; in United States, Mexico, France, Spain, Central and South America, $3.50; in other countries, $4.00. Make membership fee payable at par in Ottawa.

Member Audit Bureau of Circulations.

Special Representatives:

Ontario: F. A. Dallyn, 21 King Street, E., Toronto, (Tel. EL. 2863)
Quebec: F. A. Dallyn, 2151 Ontario Street E., Montreal. (Tel. FR. 1722)
Eastern United States: Wells Constantine, 116 East 16th St., New York, N.Y. (Tel. ST. 92929)
Europe: Norah C. Perry, 5 Upper Dagnall Street, St. Albans, Herts., England

Entered as second-class matter at the Post Office, Montreal, Canada.

PRINTED IN CANADA

Group of persons interested in Aerial Locomotion, including all the members* of the Aerial Experiment Association. Photograph taken at Hammondsport, N.Y., April 6, 1908. (See opposite page for detail of personnel).

Mabel Gardiner Bell (Mrs. Alexander Graham Bell), whose idea formed the basis for the Aerial Experiment Association.

Aerodrome *Silver Dart* with John A. Douglas McCurdy at the controls, flying over the ice at Baddeck, N.S. On February 23, 1909, *Silver Dart* made a flight of over half a mile at an altitude of about 60 feet over the Bras d'Or Lakes, which was the first flight made by a heavier-than-air machine in the British Empire.

CANADA'S AIRCRAFT INDUSTRY

by **RALPH P. BELL***

ON October 1, 1907, at Baddeck, Nova Scotia, Doctor Alexander Graham Bell, the inventor of the telephone, in association with J. A. D. McCurdy, F. W. ("Casey") Baldwin, Thomas Selfridge, and Glen H. Curtiss, formed what was known as the Aerial Experiment Association.

The idea on which this organization was based originated with Mrs. Alexander Graham Bell, who provided the money with which to finance it. Without her vision and her financial sacrifice — for the funds she contributed represented practically all her financial worth — the spectacular results from which those participating have received undying fame and credit would probably never have been realized.

Seventeen months after the formation of the Association, the first heavier-than-air machine to fly in the British Empire, the *Silver Dart*, with McCurdy at the controls, made its initial flight, off the ice, at Baddeck, Nova Scotia, on the twenty-third of February, 1909.

The birth of Canada's Aircraft Industry was, therefore, one of international import and significance.

Seven years later, in 1916, McCurdy

*Director-General of Aircraft Production for Canada

Top left, standing, left to right:—T. S. BALDWIN, who constructed the first dirigible balloon for the United States Government; *F. W. BALDWIN, M.E., University of Toronto; Chief Engineer of the A.E.A., who made the first public flight in America in a heavier-than-air flying-machine, March 12, 1908, in the Association's Drome No. 1, Selfridge's Red Wing, over the ice on Lake Keuka, near Hammondsport, N.Y.; J. NEWTON WILLIAMS, who constructed at Hammondsport, N.Y., a full-sized Helicopter to carry a man into the air; *J. A. DOUGLAS McCURDY, M.E., University of Toronto, Assistant Engineer of the A.E.A., also Treasurer of the Association from the beginning, and Secretary after the death of Lieut. Selfridge; *LIEUT. THOMAS E. SELFRIDGE, Military Expert in Aerodromics, who was killed Sept. 17, 1908, in the accident to Orville Wright's flying-machine at Fort Meyer, Va., near Washington, D.C. He was detailed by the U.S. Government to observe the experiments of the A.E.A. at Baddeck, N.S., and Hammondsport, N.Y., in the interests of the U.S. Army and acted as Secretary of the Association. He made an ascent in the Association's Kite Cygnet I, Dec. 6, 1907, over the waters of the Bras d'Or Lakes, near Baddeck, Nova Scotia.

Sitting:—*ALEXANDER GRAHAM BELL, Chairman of the A.E.A.; WM. F. BEDWIN, Superintendent of Dr. Bell's Beinn Bhreagh Laboratory; *GLEN H. CURTISS, Director of Experiments of the A.E.A., and its Chief Executive Officer who made the first measured flight in America in a flying-machine under test conditions, in the Association's Drome No. 3, Curtiss' June Bug, July 4, 1908, when he was awarded the Scientific American Trophy by the Aero Club of America.

A Norseman on skis ready for flight. The first Norseman was designed and built by Noorduyn and was flown November 7, 1935. Inset:—Mr. R. B. C. Noorduyn

scored another "first" with the establishment at Toronto, Ontario, of Curtiss Airplane and Motors, Limited, the first organization in Canada to build aircraft on a commercial scale.

The youth of the Industry is emphasized by the fact that Mr. McCurdy is still in the forefront, occupying as he does the position of Supervisor of all purchases of the Aircraft Branch and Assistant Director of Aircraft Production in the Department of Munitions and Supply at Ottawa.

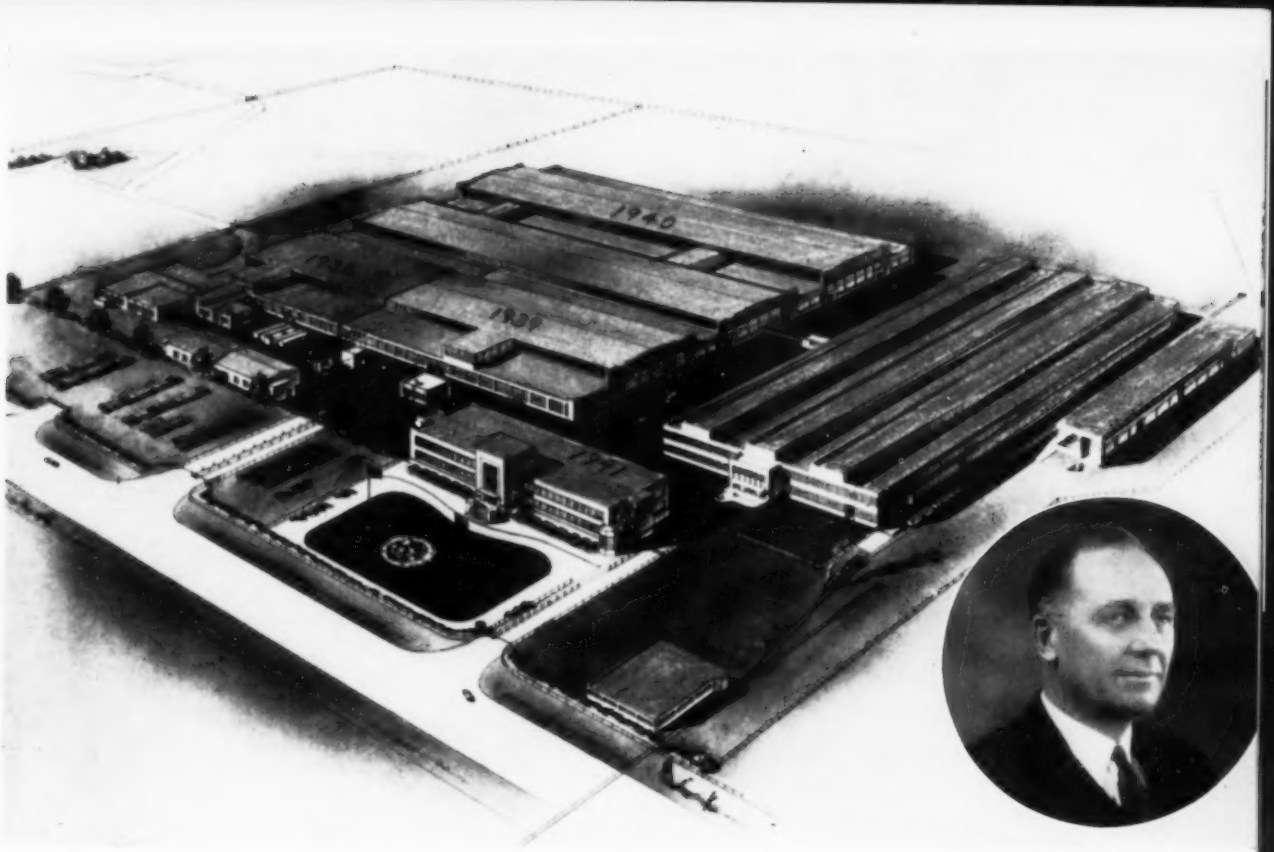
Because of their Aerial Experiment Association which produced the first heavier-than-air machine to fly in the British Empire, and the fact that one of its members actually piloted it on that epic trip, it is not unnatural that Dr. and Mrs. Bell, and their associates, are usually referred to as the pioneers in this field, so far as Canada and the Empire are concerned.

Actually, however, a tremendous amount of the basic research work, the science of aerodynamics, which is the foundation on which the whole structure rests, was done prior to 1907 by Wallace Rupert Turnbull.

It is an odd and interesting coincidence that Turnbull is also a Canadian, a native of the Maritime Provinces, and that his research and experimental work in this field, each of which has made such an important contribution to the subsequent developments in the Aircraft Industry, should also have taken place in a small rural community, namely the Village of Rothesay, New Brunswick.

Turnbull's activities date from 1902, and include such aircraft work at the first wind tunnel in Canada, and the invention of an electrically controlled variable pitch constant speed propeller, now being built in enormous quantities by the Curtiss Wright Company in the United States, and licensed as well to the Bristol Aeroplane Co., Limited, Bristol, England.

Writing at this time, Turnbull said, "Just as soon as the mechanical engineer can command at his designing table full data concerning the lift, drag, and centre of pressure of aeroplanes, the thrust and efficiency of different forms of aeroplane propellers, the strength and suitability of materials, and the complete elements entering into the stability of the aeroplane,



Canada's largest aircraft plant, at Malton, Ontario, built by National Steel Car Corporation, Limited. Inset:—Mr. Robert J. Magor, President

just so soon, and not before, can we reasonably expect the problem of aero navigation to be really solved."

As some one subsequently said, "That was certainly calling his shots for the next twenty-five years."

The aircraft built in Canada in the last war were the product of Curtiss Airplane and Motors, Limited, and the succeeding company, Canadian Aeroplanes, Limited, formed by the Imperial Munitions Board. Between the two they turned in a truly remarkable performance for those days by building just short of 3,000 of what, to-day, would be called "stick and string" machines, which played their part in the conflict of that era and produced for the Empire such brilliant heroes as Bishop, Barker, Collishaw, and Maclaren.

The description "stick and string" is not used with the idea of disparaging the aircraft these companies produced but in the jargon of the Industry denotes machines constructed chiefly of wood and fabric — many of this basic type of construction are still being built and used to-day.

Following the close of the war the manufacture of aircraft in Canada ceased completely.

David Boyd, Manager, Aircraft Division, National Steel Car Corporation, Limited

In 1923, as a result of a requisition of the Canadian Air Board (to which was attached the condition that the planes be built in Canada) Canadian Vickers, Limited, the successful tenderers, commenced the production of eight single-engined amphibians.

The revival of Canada's Aircraft Industry dates from that contract.

It is an interesting coincidence that it is this same company that has produced

Paul F. Sise, President of Canadian Associated Aircraft, Limited. This organization, with a roster of six associated companies, has been engaged in the production of the British twin-engined Hampden bomber, largest twin-engined bomber in the Empire.

the Stranraer Flying Boat for patrol work off our coasts in this war and that it is to-day engaged in the preliminary work leading to the construction of one of the great flying ships of all time, the famous PBY Amphibian.

The PBY has the record of the greatest range of any twin-engined bomber in the world to-day, being able to stay aloft over thirty-three hours. It was one of these sturdy craft that apprehended the *Bismarck* in the final stages of that spectacular game of hide and seek nine months ago. Had it not been for this ability to stay aloft for such long periods the quarry might easily have escaped with what results no one can prophesy.

In November, 1934, Noorduyn commenced the design of the Norseman at Montreal. Manufacture was started in May, 1935, and the first Norseman flew on November 7 of that same year. That this machine should still be in active demand, and that only recently the United States, with all its aircraft manufacturing facilities, should have come to Canada and

Fairchild Aircraft Limited with modern plant are turning out twin-engined high speed bombers. Responsible officials shown in photograph include, left to right:—N. C. Annand; E. C. Rechel; F. Bindoff; N. F. Vanderlipp; H. M. Pasmore, President; R. B. Irvine; Arthur Todhunter; W. J. Gregson, and W. J. Trevlyn.

Associated Screen News photo

Above:—One month's output of Bolingbroke bombers from the Fairchild plant

Right:—The famous Bolingbroke in flight

Executives of Canadian Vickers, Limited, the company that pioneered the rebirth of aircraft production in Canada, left to right:—Mr. J. E. Labelle, President; T. R. McLagan, General Manager, and Mr. B. W. Franklin, head of Aircraft Division.

Officials of Noorduyn Aviation Limited, left to right: R.B.C. Noorduyn, Vice-President and General Manager; W. L. Bayer, President; and Norman H. Bell, Factory Manager

Photo by William Notman & Sons Ltd.

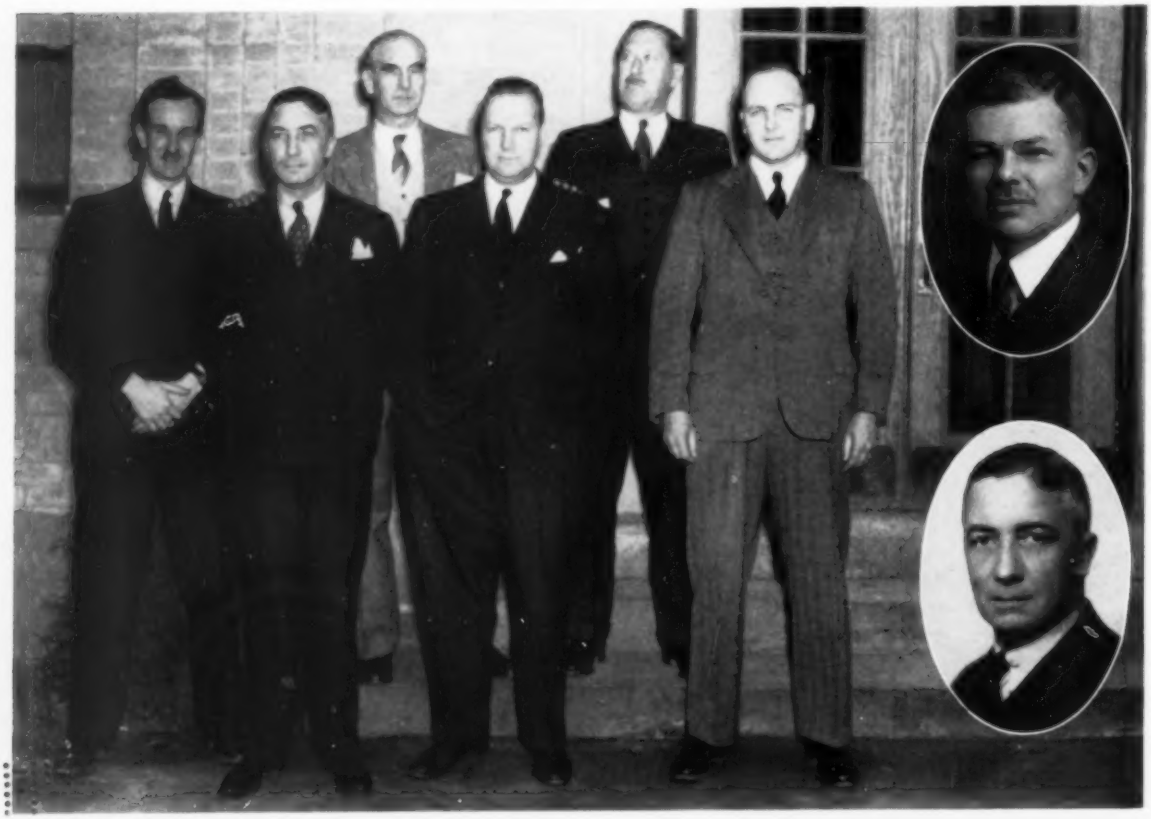
purchased several of these machines for special work, speaks in glowing terms of the quality and the inherently-sound design characteristics of this now famous Canadian ship.

At the outbreak of the present war, the roster of Canadian Aircraft Companies was:—

Montreal Area	Fairchild Aircraft, Limited
	Noorduyn Aviation Limited
Toronto	The DeHavilland Aircraft of Canada, Limited
Hamilton	Cub Aircraft Corporation, Limited
Fort Erie	Fleet Aircraft, Limited
Vancouver	Boeing Aircraft of Canada, Limited

The six foregoing were engaged exclusively in the manufacture and or assembly and repair of aircraft.

Key men of DeHavilland Aircraft of Canada, Limited, now producing Tiger Moths and Canadian Ansons, are now planning to concentrate on the production of modern twin-engined fighters for England. Executives, left to right:—R. J. Moffet, W. J. McDonough, F. P. Hyde-Beadle, G. J. Mickleborough, E. Featherstonehaugh, H. E. Brown. Insets (top):—Mr. P. C. Garratt, Managing Director, (bottom):—"Jack" McDonough



In addition to these there were also —

Montreal	Canadian Vickers, Limited, Aircraft Division, which in 1923 undertook a contract for flying boats for the R.C.A.F., thus leading the revival of the Industry in Canada.
	Canadian Car and Foundry Company, Limited, Aircraft Division, which had designed and built a small radial engine of less than 200 h.p.
Ottawa	Ottawa Car and Aircraft, Limited, which company was still concerned chiefly with aircraft engines and the overhaul and repair of planes.
Fort William	Canadian Car and Foundry Company, Limited, which had designed and built both trainers and fighting machines chiefly for export.

One courageous, far-sighted Canadian industrialist, Robert J. Magor, President of National Steel Car Corporation, Limited, envisioning the impending conflict and the need for modern facilities for the construction of aircraft in Canada on a large scale, had already laid down plans for the largest aircraft plant in Canada: and, to-day, as a result of his foresight and courage there is nearing completion at the Malton Air-

"Cornell" the elementary trainer recently selected as the standard for the British Commonwealth Air Training Plan and R.C.A.F. schools in Canada. Fleet Aircraft, Limited, at Fort Erie, are tooling up to produce this plane. Executives, left to right, — J. McGinnis, K. J. Libby, T. F. Williams, W. N. Deisher, General Manager; G. E. Otter, W. J. Sanderson, President and Managing Director; G. C. Chataway, A. B. Silcox and S. Chiswell.

The famous PBY Amphibian now being manufactured by Boeing Aircraft of Canada, Limited, at Vancouver and Canadian Vickers, Limited, at Montreal.

port on the outskirts of Toronto one of the most modern aircraft plants in the world, with a total area of some 750,000 square feet of floor space, constructed and equipped without one cent of Government assistance.

The total floor space occupied by the Canadian Aircraft Industry prior to the war was something in the order of 500,000 square feet, the total personnel engaged (average for four years preceding the war) was less than 1,000, and the number of aircraft produced in a year averaged less than forty.

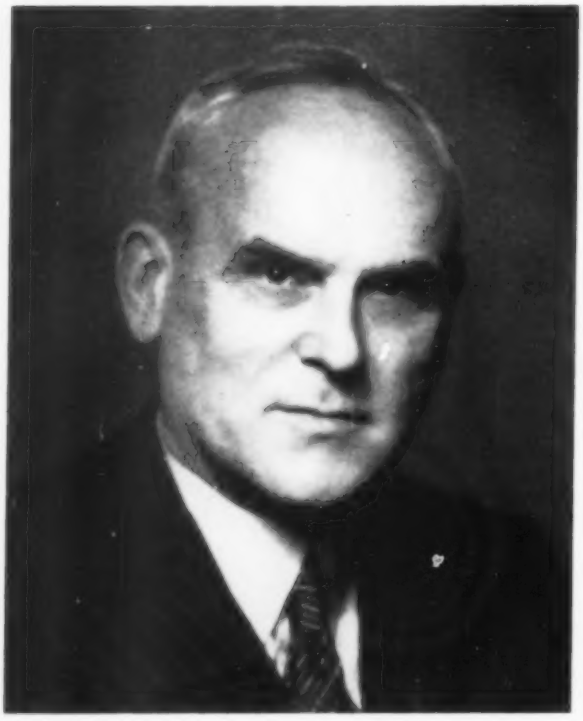
This was the pre-war Canadian picture. So much for the past.

Executives of Boeing Aircraft of Canada, Limited, Vancouver, B.C. which is engaged in the production of the P. B. Y. Amphibian, left to right:—Stanley Burke, President; George Sweny and A. A. Soderquist.

Officials of Canadian Car and Foundry Company, Limited, left to right: — V. M. Drury, President; Air Commodore R. H. Mulock, E. J. Soulsby

Officials of Federal Aircraft, Limited, which company is responsible for the production of the Canadian Anson, left to right, top row:—A. Sidney Dawes; Ray Lawson, President; William A. Newman; centre:—Russell Smith, G. Blair Gordon, G. Miller Hyde, A. A. Aitken; bottom:—D.H. Macfarlane, J. McKay-Clements and J. M. Packham.

Framed in the huge sliding doorway of the Boeing Aircraft plant in Vancouver is a Stranraer flying boat being overhauled



Honourable C. D. Howe, Minister of Munitions and Supply

Photo by Fayer

To-day, Canada's Aircraft Industry occupies 5,000,000 square feet of floor space, employs 40,000 men and women, and produces far more planes in a week than were produced pre-war in a year.

These things do not just happen. The vision and driving force responsible for this achievement sprang largely from The Honourable C. D. Howe, Minister of Munitions and Supply in the Canadian Cabinet. In June, 1940, when Britain's Allies were toppling like the proverbial pack of cards, and so many people had seemingly given up all hope, his indomitable courage and determination were an inspiration to those around him.

That was twenty months ago. Then, the Canadian Industry comprised nine small inadequately equipped main plants, most of which were located alongside rough fields; these in turn supported by a couple

George W. Metcalfe, veteran of the Aircraft Industry who worked on monoplanes more than thirty years ago, is shown examining a blueprint of the Canadian Anson.

of small engine service and repair plants in Montreal, and two or three small overhaul plants in the West.

To-day, six of these are thoroughly modern plants, completely tooled and equipped, with hard-surfaced runways at their very doors. The rehabilitation of a seventh is in process, and the other two have been substantially expanded and equipped proportionately.

The engine overhaul and assembly plants of Canadian Pratt and Whitney Company, Limited, at Longueuil and Canadian Wright, Limited, and British Aeroplane Engines, Limited, of Montreal have been tremendously expanded and improved.

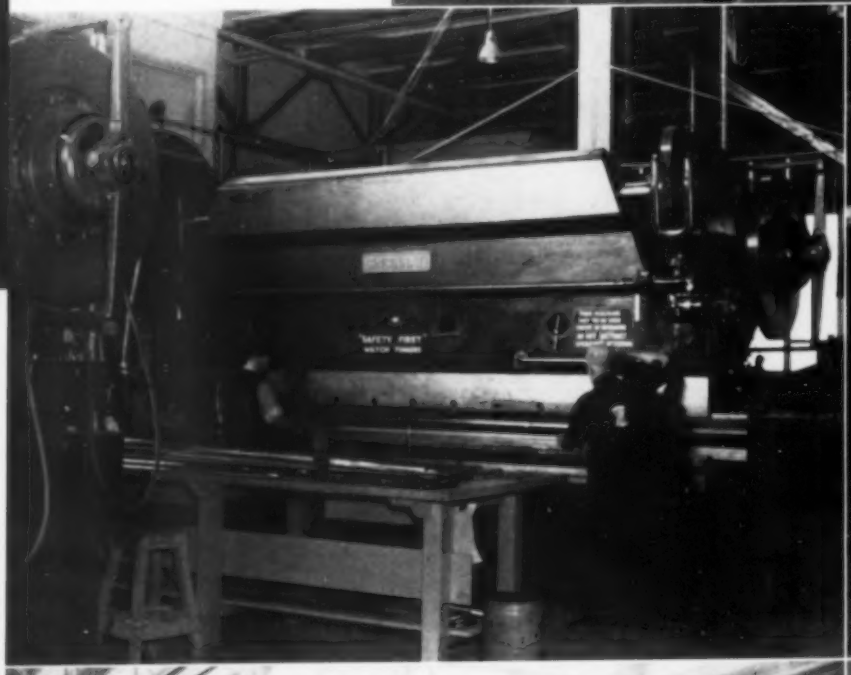
At Kingston, Ontario, an aluminum forging plant capable of forging the largest propeller blades in the world is already in operation, and to-day thousands upon thousands of these important units flow from this great industrial operation.

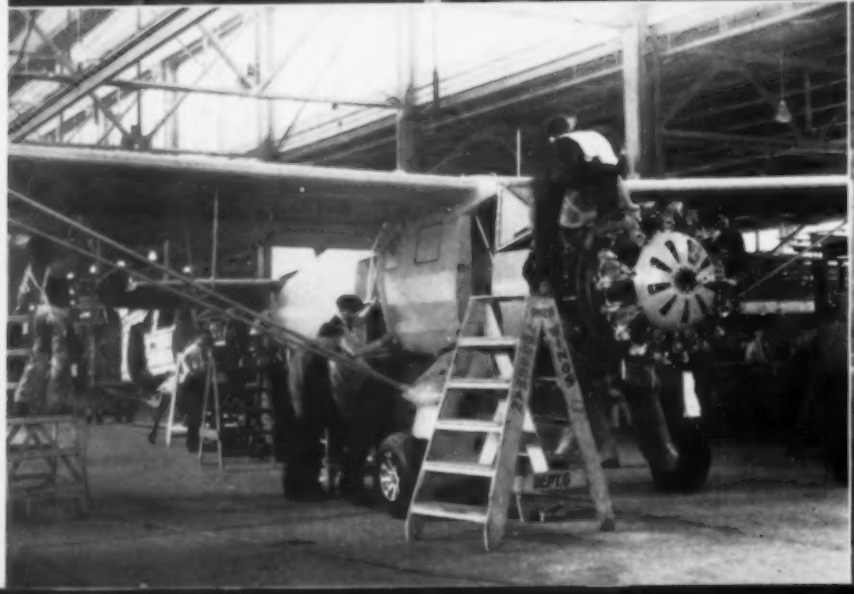
At Montreal, St. Johns (Quebec), and Winnipeg, there are completely up-to-date propeller-manufacturing plants where blades of every type are fashioned and finished — the solid wooden blade, the complicated laminated or compressed wood blade manufactured under a secret formula, and operating in a metal hub and, finally, the metal blade itself assembled with its hub and completely ready for operation.

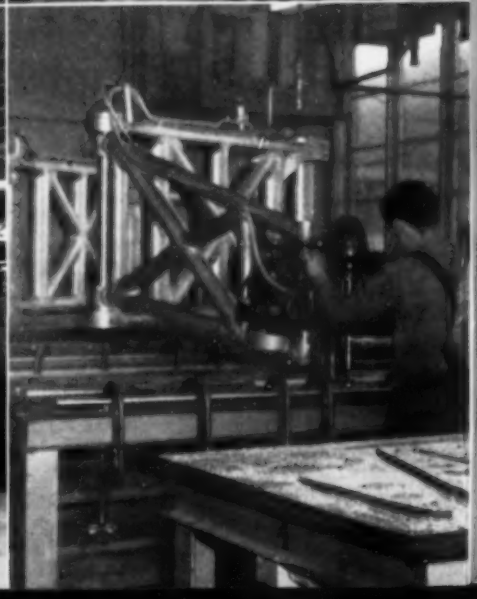
Technicians working on British Aero Engines.

To-day Canada's Aircraft Industry, occupying five million square feet of floor space, employs 40 thousand men and women, and produces far more planes in a week than were produced pre-war in a year.

Scenes at Noorduyn Aviation Limited plant, Montreal — where the Norseman is produced.



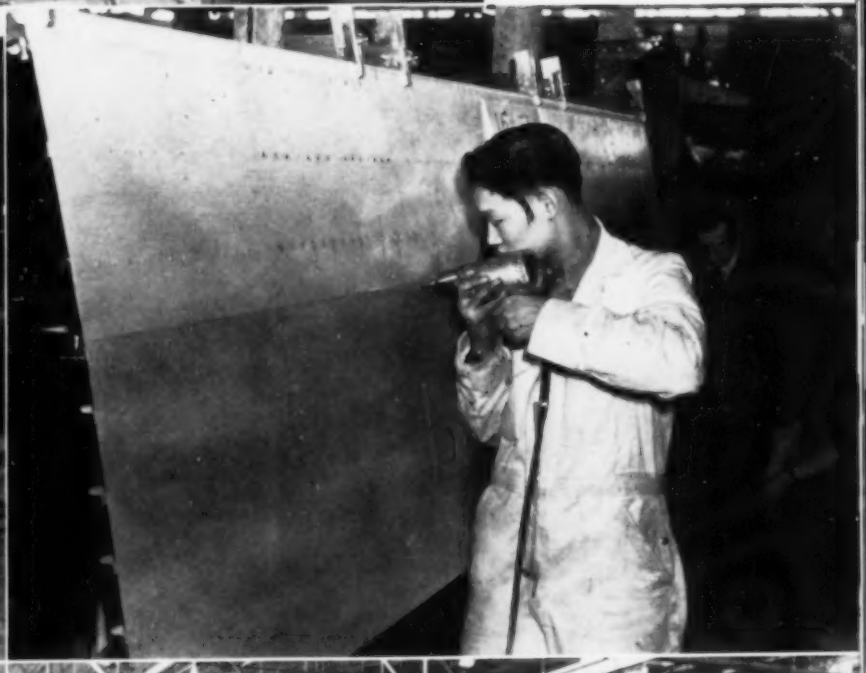


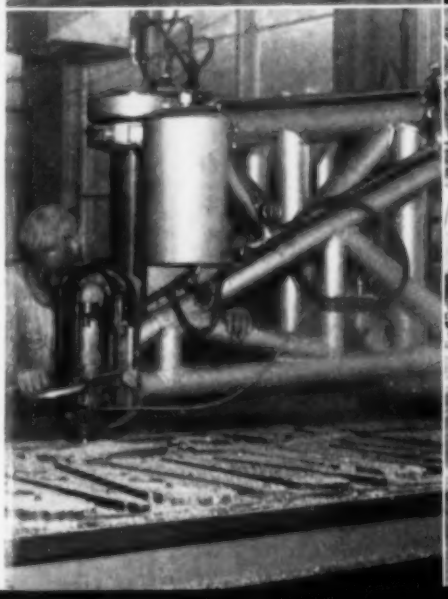


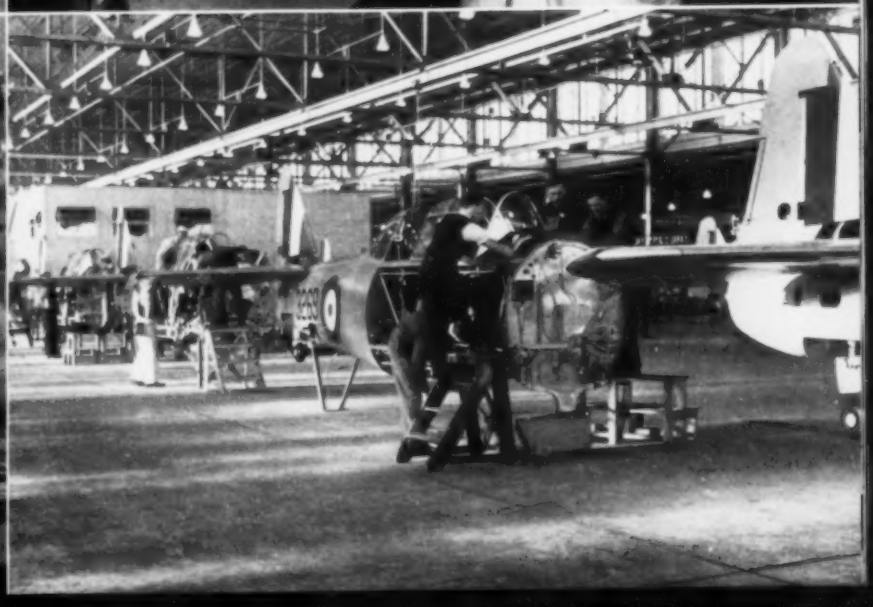
Top row, left to right:— Working for Victory—Active section where Norseman trainers are overhauled for the R.C.A.F.

Centre row, left to right:— Bending aluminum channels — Sewing fabrics on rudder — Press for making gasoline tanks from sheet aluminum — Drilling rivet holes in wings.

Bottom row, left to right:— Norseman takes shape on the assembly line — Scroll saw cutting to pattern in aluminum — Section of the Harvard assembly line.







Top:—Canadian-built Avro Anson trainer in the making; bottom:—Just off the assembly line, being wheeled out for its test flight before delivery to the Air Force.

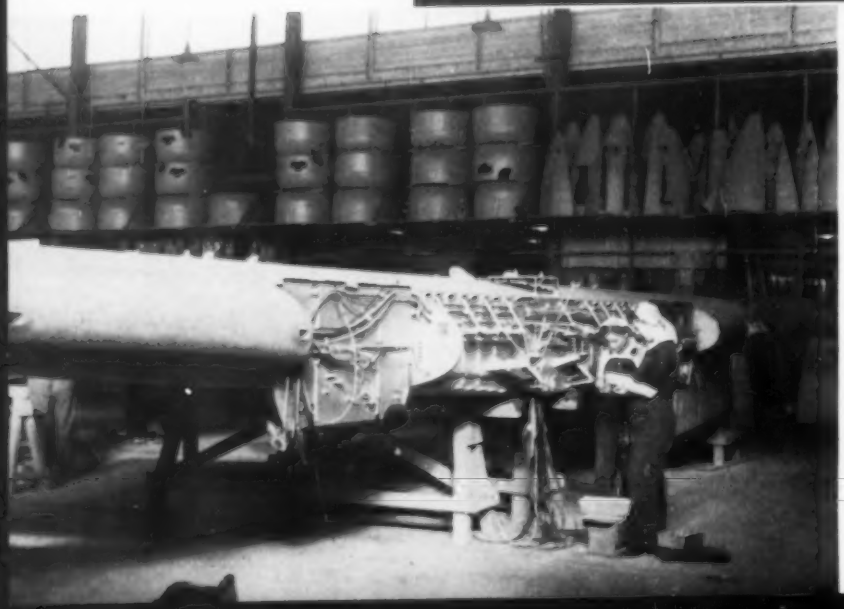
Interior views of Fairchild Aircraft, Limited, where over 4,000 employees are participating in stepping up Canada's aircraft production: above:—A section of Bolingbroke assembly line; below:—Working on Bolingbroke noses on the assembly line.

CANADA'S INDUSTRIAL TOP DAILY - MORE PLA FOR V

Some views at the Malton where the largest Aircraft of the most modern in the

Exterior of Malton plant with finished planes awaiting flight test, in the foreground.

Assembling wings to fuselage of Canadian Anson.



Wiring Hampden bomber wings.

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ARMY GOES OVER THE
NES ROLL OFF THE LINES
ICTORY

plant of National Steel Car,
plant in Canada, and one
world, is nearing completion.

Welding exhaust collector rings.

Adjusting the powerful engine.

Canadian Ansons ready for business

Stages in the manufacture of aeroplane propellers, at Winnipeg, Manitoba. Left to right:—Selected up production twelve-fold;

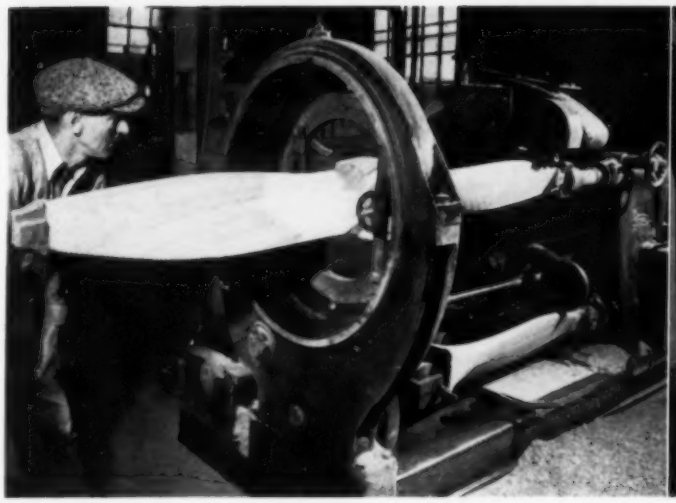
At Toronto, two large concerns are exclusively devoted to the manufacture of aircraft instruments, and within a few short months Canada's Aircraft Industry will be self-contained and independent so far as power plant instruments and the regular line of standard flight instruments are concerned.

In each of the provinces of Quebec and Ontario there are plants manufacturing large quantities of parachutes.

The great agricultural implement firms, Massey-Harris Company, Limited, and Cockshutt Plow Company, Limited, reversing the biblical prophecy "and they shall beat their swords into plowshares, and their spears into pruninghooks" are engaged in the manufacture of aircraft wings, ailerons, flaps, undercarriages, and important engine components.

The Dominion Oilcloth & Linoleum Company, Limited, is adapting its enormous hydro presses to aircraft work and will shortly be providing pressed metal components for some of our most important programmes.

Hundreds of manufacturers throughout the Dominion have undertaken the production of parts and equipment of one kind or another, whilst from coast to coast there stretches a chain of modern overhaul and repair plants manned by a personnel of approximately 5,000 and occupying a total floor space of almost 1,000,000 square feet Such are the facilities necessary to service



wood is essential; checking the pitch of blades requires precision; modern "profiling" lathe speeds
five coats of varnish are used.

and keep in the air the thousands of craft required in the gigantic Training Plan, in the conduct of which, maintenance, overhaul, and repair occupy a position almost as important as that of primary production.

Since these astounding developments had their genesis in the mind of a wistful-eyed little woman in the Cape Breton hills, some third of a century ago, no article on Aircraft Production in Canada would be complete without reference and tribute to the part that Woman plays in this vital Industry.

From a mere handful at the outbreak of war to well over 3,000 to-day, from a seamstress stitching fabric on the wing of an elementary trainer, from a secretary in an office, from a riveter on a cockpit cowling, or a welder at the bench, to chief engineer of the Fort William plant of Canadian Car and Foundry Company, Limited, employing some 4,500 men and women, Woman plays and will continue to play an increasing part in this great Canadian Industry.

It is doubtful if any country in the world to-day has a better diversified aircraft programme than that of Canada. Certainly no country of its population can even remotely compare with what is being done here in this important field. Primary, intermediate and advanced trainers, each the best in its class anywhere; fighter, dive bomber, bomber, and coastal reconnaissance amphibian, each the finest in the world, each being built in a single plant, several of which were especially designed for the particular machine in question — that is Canada's Aircraft Programme;

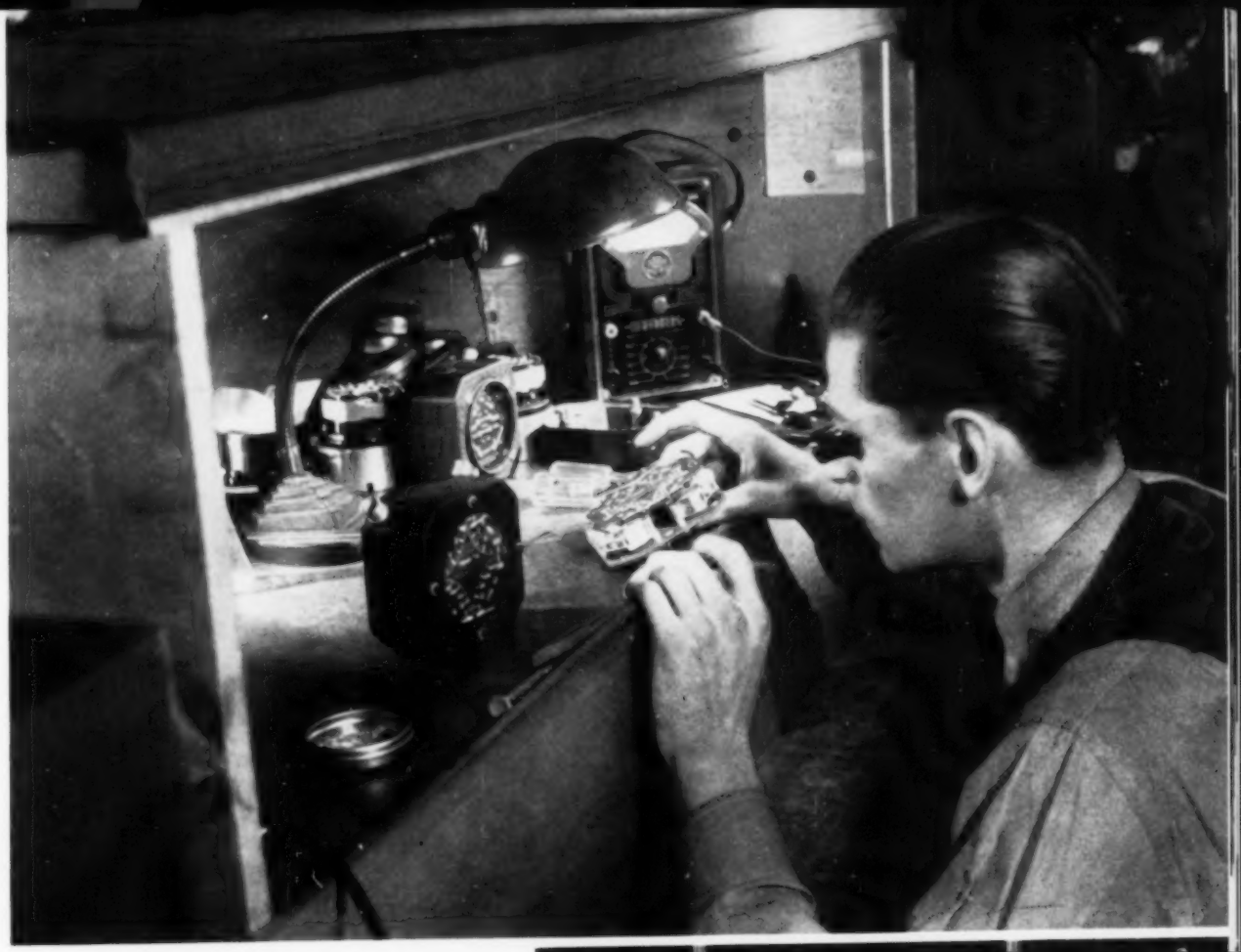
Stages in making metal propeller blades at Aluminum Company's plant at Kingston, Ontario.

Bottom left:—Rolling rough blanks before forging.

Left:—Drophammer forging aluminum into propeller blades.

Centre:—Machining propeller blanks.

Agricultural implement manufacturers contribute. Scenes at Cockshutt Company's plant, Brantford (top): and Massey-Harris, Weston, Ontario (below). Completed welded tubing for aeroplanes with presses in the background. Constructing Anson aeroplane wings.



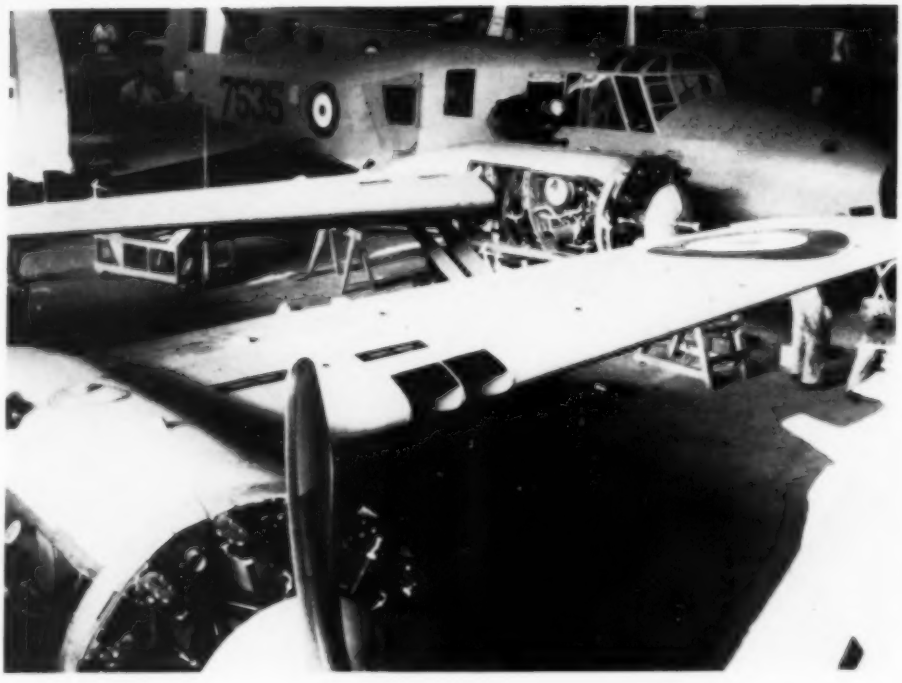
Within a few short months Canada's Aircraft Industry will be self-contained and independent so far as power plant instruments and the regular line of standard flight instruments are concerned.

Above—Inspecting and testing aeroplane instruments.

Right—Breaking and weighing optical glass.

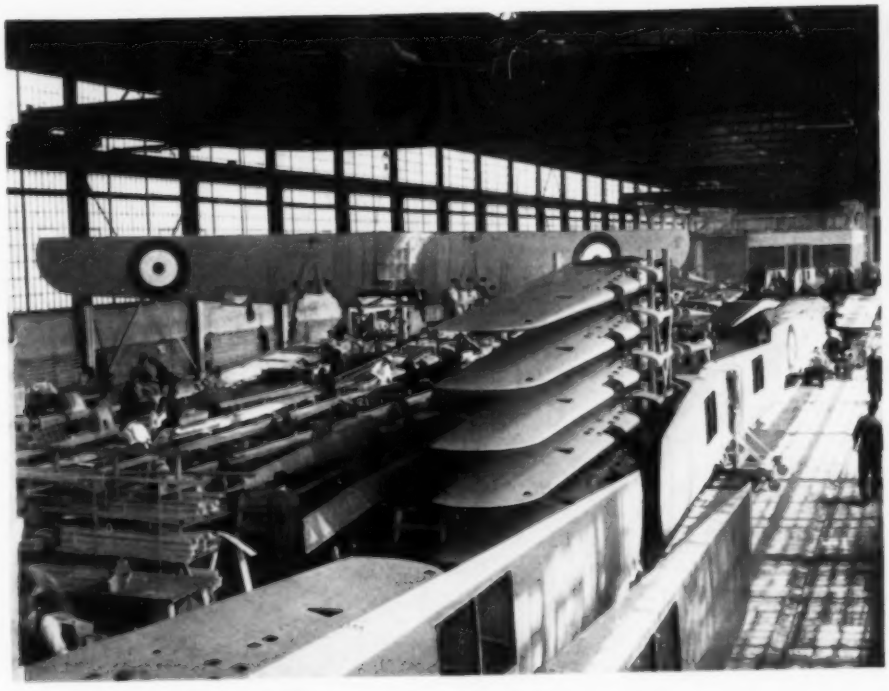
Top, right, bottom: — Canadian Ansons in stages of assembly

Scenes at Downsview where the De-Havilland Aircraft of Canada, Limited, employ 3,600 workers, now mainly engaged in the production of Tiger Moths and Canadian Ansons.



Top centre:—Tiger Moths

Below:—A new shift



Top: — Working on Anson engines.

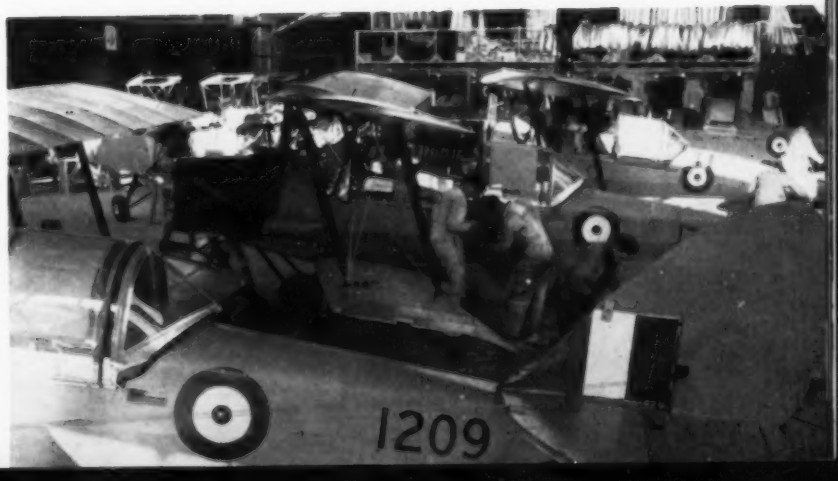
The workers engaged in this plant will shortly be making modern twin-engined fighters for England.

Left: — Wings and more wings!

Bottom—Section of Tiger Moths assembly line

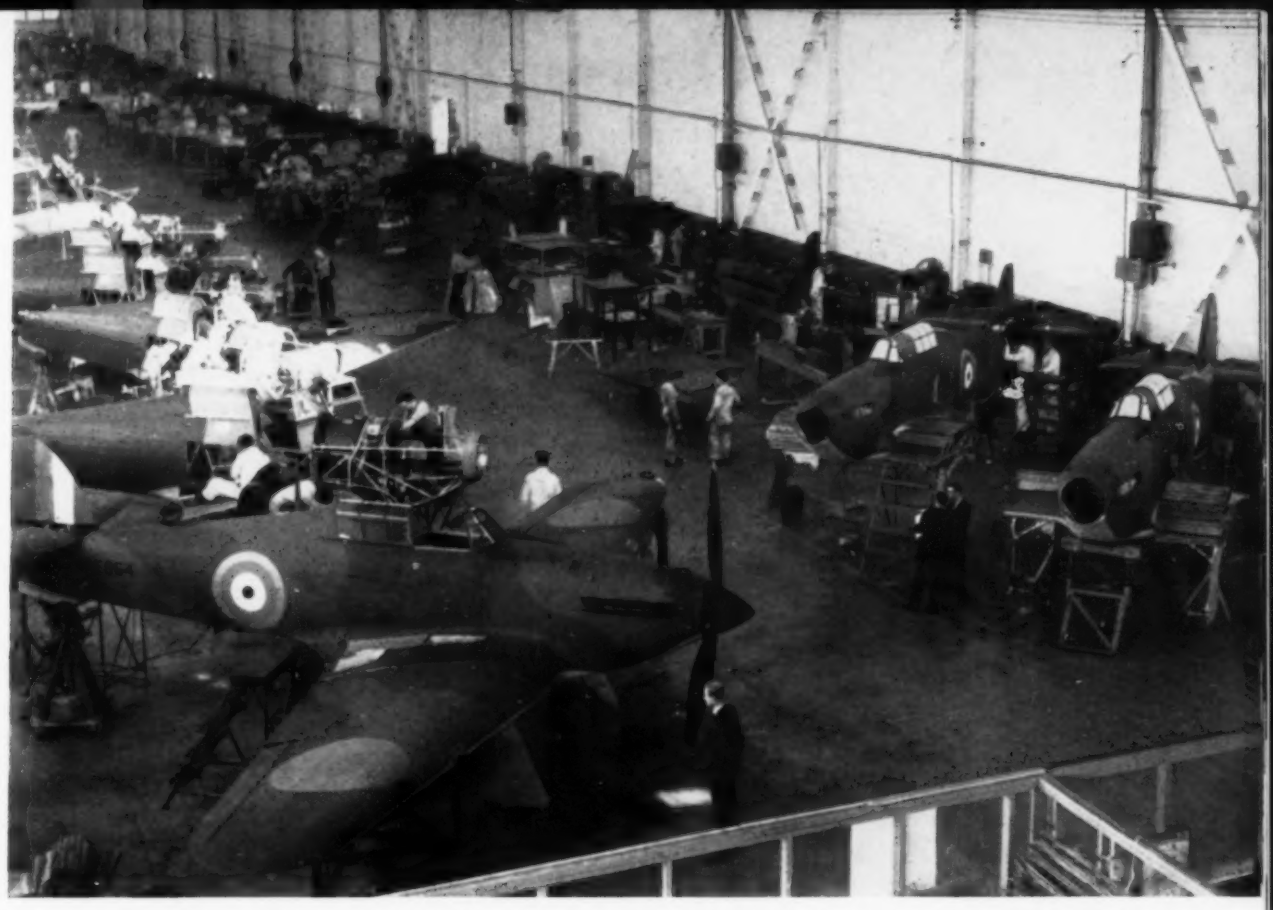
and Ansons ready to fly

has taken over.



A group of DeHavilland training planes reach the end of the assembly line. After inspection they will be used under the British Commonwealth Air Training Plan in preliminary stages of flying instruction.

Completed Norseman trainers, used to train wireless operators, await their engines and final adjustments in the assembly line of the Noorduyn plant in Montreal.



Part of the assembly line in the Hurricane plant of Canadian Car and Foundry Company, Limited, at Fort William. Fifteen planes are turned out of this factory, each week, for shipment to Great Britain. Some idea of the hand-work required in the manufacture of modern fighting planes may be gained from this general view of the sheet metal workers' benches in this plant.

Anson assembly lines at MacDonald Bros. plant, Winnipeg, Manitoba

Hurricane leaving the hangar of Canadian Car and Foundry Company for a test flight at Fort William, Ontario.

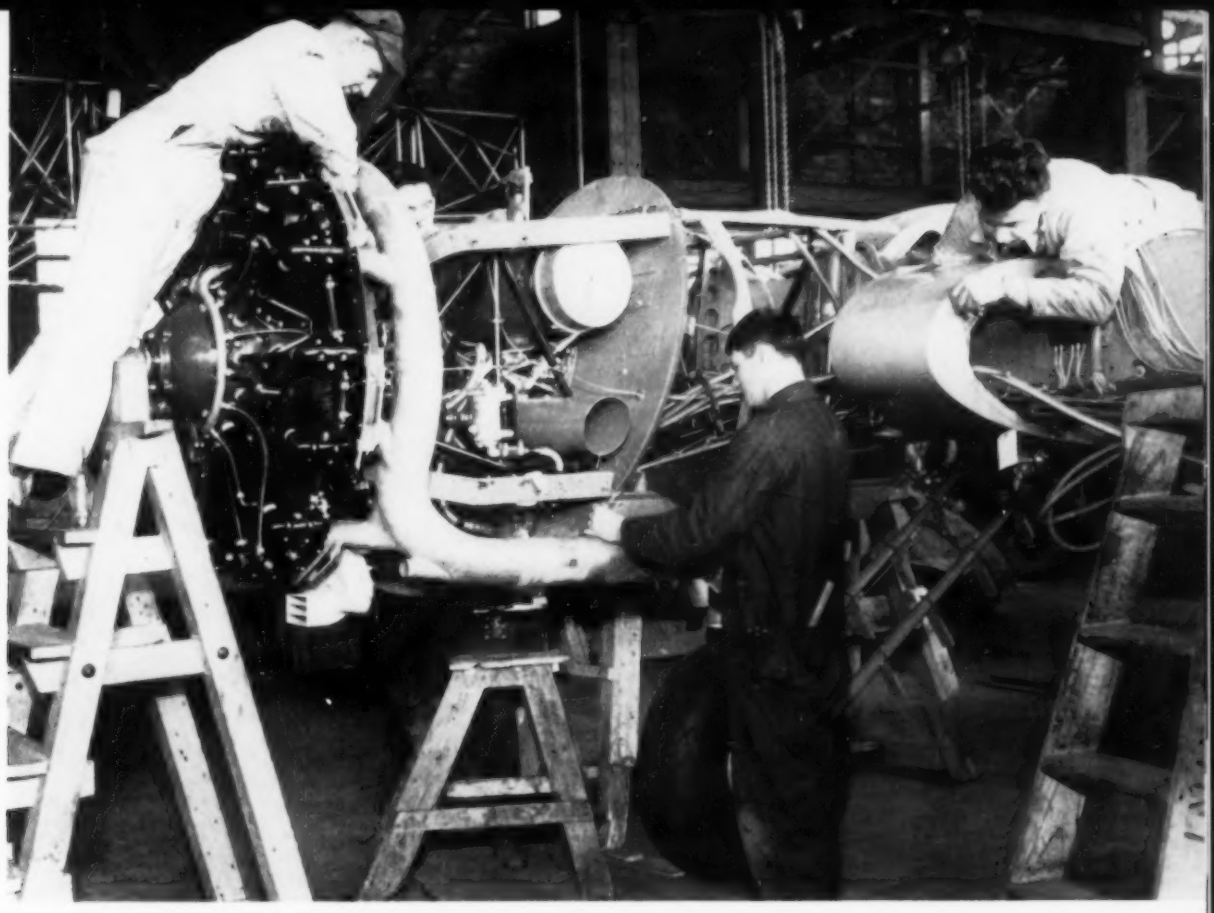
Engine overhaul shop of Canadian Airways, Limited, Winnipeg, Manitoba

Assembly line of Fleet "Fort" aeroplanes

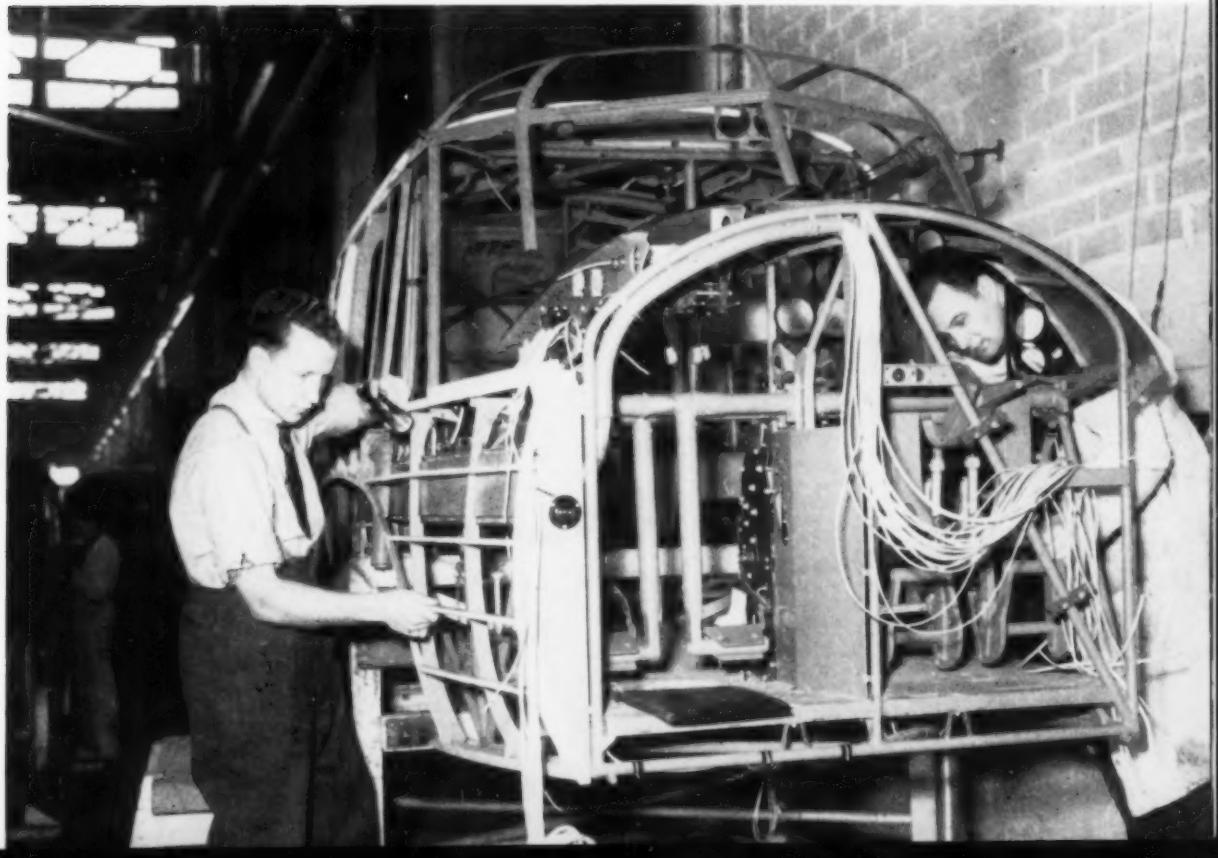
Hawker Hurricane fighters on the assembly line at Fort William, Ontario

Ready for the test flight

Twin-engined Avro Ansons on the assembly line at Amherst



SCENES AT AMHERST, NOVA SCOTIA
Mounting engine on plane, while the man on the wing installs gasoline feed line.
Experts checking fuselage before it is coated with fabric.



With expert fingers seamstresses at a Canadian plant, cut and piece together the 65 yards of finest silk which go into a standard R.C.A.F. parachute.

every plant booked solid at least until December 31st, 1943, and some into 1944 and even 1945. The job now is to procure, schedule, and follow the necessary flow of materials and parts for this enormously complicated undertaking. When one knows that the total volume of aircraft orders in Canada to-day is substantially in excess of $500,000,000, one will perhaps better be able to comprehend the stupendous task with which this lusty infant industry is faced. Obviously, there are troubles and difficulties to be dealt with, but similar and worse have been met and overcome in the past eighteen months, and, while the job is now enormously greater, the experience and the capacity to cope with it has been expanded proportionately.

From a mere figment of imagination in the minds of one woman and five men in the little village of Baddeck, Nova Scotia, to the British Commonwealth Air Training Plan which promises to be one of the determining factors in saving the British Empire from destruction; and from five visionary experimenters in a small wooden workshop on a Cape Breton hillside, laboriously building something they hoped might fly, to an industry stretching from coast to coast, occupying 5,000,000 square feet of floor space, employing 40,000 men and women, and turning out thousands of machines per year are the developments of less than half a lifetime.

Canada's Aircraft Programme now provides not only for the training and the

defence requirements of the Dominion but includes as well certain modern combat types designed to contribute valuable assistance to Britain and her Allies and the United States in fields of active operation in various parts of the world.

Orders now in the hands of Canadian aircraft manufacturers total substantially in excess of 10,000 aircraft. Based on the comparative population of the two countries this is the equivalent of approximately 120,000 planes in the United States.

An industry which in the short space of two and a half years has been able to expand its personnel over forty times and its output eighty times, and all that in face of the difficulties inherent in a situation where building expansion and equipment is the order of the day, is one in which Canadians may well have confidence.

Miss Elsie Gregory McGill, B.A.Sc., (University of Toronto), and M.S.E. (University of Michigan), is the only one of her sex to hold the position of chief aeronautical engineer. She is employed at the great Fort William plant of the Canadian Car and Foundry Company, Limited, which has turned out hundreds of fighter planes since the outbreak of war.

Technical schools across the Dominion take their part in training technicians for the Aircraft Industry. Typical scenes at Central Technical School, Toronto

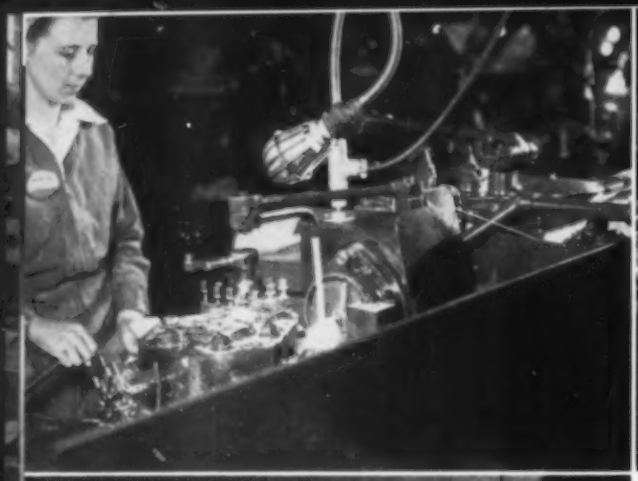
(1) To work.

(2) Learning to handle fabric.

(3) Instruction in wiring a wing.

(4) Teaching the technique of soldering.

(5) A lesson in filing.



OUR FRONT LINE FORCES MUST BE SERVED

TENS OF THOUSANDS OF CANADIAN MEN AND WOMEN SET NEW HIGHS DAILY

Glimpses of workers engaged in various parts of Canada.

1 2
3

Left page, top to bottom, left row:— On the lathe; Adjusting electrical bellows operating mechanism of a Link trainer; Making tools and dies; Revolving turret from which the gunner may operate effectively. Right row:— Welding fuel tank for Hawker Hurricane; Building and inspecting directional antennae; Radio inspection.

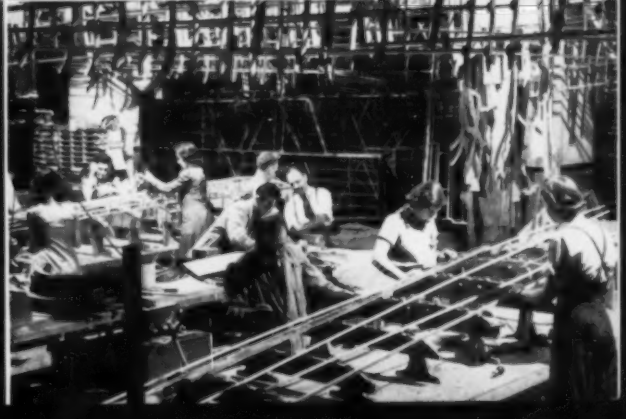
(1-2-3) Experts welding and riveting.

(4) Under instruction, these girls become experts in wiring operations.

(5) Working in wings for twin-motored Avro Ansons

(6) Assembling radio chassis.

4
6 5



Photograph by Malcolm Rosholt

Native types in the Netherlands East Indies. Mohammedan boys (as indicated by the felt caps).

Rubber: view of a series of houses for native workmen on one of the important rubber estates on the Island of Sumatra.

AGAINST THE DUTCH EAST INDIAN BACKDROP

by **RENÉE TALLANTYRE**

THE latest developments* in World War II, which might better be called World Revolution, have brought the Dutch East Indies to the foreground of United States and British interest, sympathy, importance and speculation. *Interest* and *sympathy* because the Indies are colourful and romantic and the Dutch are among Hitler's victims whom we respect; *importance* because much of the future, good or bad, depends for the United States and the British Empire upon the fate of the East Indies; and *speculation* for the reason that few ordinary citizens of the States or the Empire know anything of the lives, customs and manners of the Indonesians or their Dutch colonizers.

Before the invasion of Holland by the Germans on May 10, 1940, wich placed the Colonial Empire of the Dutch on its own resources, commerce between the East Indies and the United States had been on the increase. From 1935, until the outbreak of the war in 1939, the United States was almost as good a customer of the Indies as Holland herself, being surpassed in the sale of goods to the Indies only by Holland and Japan. After the Germans overran the Netherlands, the United States became the largest supplier of the Indies as well as their best customer. Defence needs of tin and rubber were being supplied to the States by the Indies; and the Indies, on their part, were buying guns and other military material from the States, including aeroplanes from more than one of the southern California factories. In 1940 the Indies furnished some 40 per cent of the rubber, 25 per cent of the tin and 98 per cent of the quinine used by the United States of America, as well as about 80 per cent of the kapok and 30 per cent of the copra. Of the world supply in 1940 of petroleum, 2½ per cent came from the Indies, as well as important quantities of sugar, coffee, palm and coco-nut oil and immense amounts of spices.

Not much is known of the early inhabitants of the East Indies. The Hindus settled there in Sumatra and Java about the start of the Christian Era and produced a blossoming civilization by the year 1500, at which time the Moslem invaders conquered the settlers. Then along came the adventurous and intrepid Portuguese voyagers and discoverers, the first Europeans to establish themselves in the East Indies, where they began to trade in spices, carrying the fragrant cargoes to various European countries, until Spain subjugated Portugal and closed her ports to the Dutch, with whom Spain was at war. So the Dutch took over the spice trade for themselves in 1596.

Of the present inhabitants of the Indies, estimated at some 70,000,000 souls, only about 250,000 are white people, and those mostly Hollanders. Chinese number about 1,250,000. Other foreign Asiatics, composed of British Indians and Arabians, add another 120,000. About 5,000 Japanese merchants are also resident.

Photograph by Ziegler

Her Majesty, Queen Wilhelmina of the Netherlands

"A people possessing vitality and a firm will cannot be defeated by mere force of arms."

Queen Wilhelmina

*December 7, 1941

"Several thousand islands go to make up the Netherlands East Indies, of which the really important ones are Java and Madoera, Sumatra, Borneo, Celebes and New Guinea; and of the latter Java, cen-

trally situated is by far one of the most densely populated places of the earth, one of the reasons for which is the combination of fertile soil and favourable climate, which together yield three crops a year."

Several thousand islands go to make up the Netherlands East Indies, of which the really important ones are Java and Madoera, Sumatra, Borneo, Celebes and New Guinea; and of the latter Java, centrally situated, is by far the most advanced. It is also one of the most densely populated places on the earth, one of the reasons for which is the combination of fertile soil and favourable climate, which together yield three crops a year.

The tongue generally spoken in the Indies is Malay, and it is used for commercial intercourse throughout the islands. Although there are some 249 other languages from which to choose in the Indies, Malay remains the *lingua franca*. The islands stretch along the Equator from the south-western part of Asia to the north-western part of Australia between the South China Sea and the Pacific Ocean on the north, and the Indian Ocean on the south, with about two-thirds of their surface on the Equator. The distance between eastern and western tips of the archipelago is more than 3,000 miles, and from north to south the islands extend some 1,300 miles. The total land area under the Dutch flag is about 750,000 square miles.

A Governor-General, appointed by the Queen of the Netherlands, rules the Dutch East Indies in the name of the crown. He is assisted in the Governorship by the Council of the Netherlands Indies and the advisory People's Council, or Volksraad, composed of 60 members, at least 30 of whom must always be natives. A famous Javanese member of the Volksraad once described his people's character thus: "Two Javanese could sit face to face and exchange thoughts without speaking a word".

* * *

Rice plays a tremendous part in the lives of the Dutch East Indians. The rice field, or *sawah*, is everywhere to be found. One might expect monotony of scene in a country where so much land is devoted to a single crop; but it is not so. Driving along the palm-shaded highway between Batavia, which is the capital of the Indies and its biggest town, and Soerabaja, the next largest city, one finds no two scenes alike. Each has its own rare beauty. There are rice fields having the widest variety of shape and contour: broad squares, or checks, in the lowlands, and magnificent terraces, or perhaps patches no bigger than a penthouse garden, in the hillsides and mountains. The rice may be growing in narrow, curving little shelves that form a luscious green stairway up the side of a mountain, giving an impression of great height; or it may fringe the very edges of deep ravines into which the water that is vital for its culture does not spill.

The copious water supply without which rice cannot be cultivated reaches the paddies by travelling through the world's oldest kind of pipeline: hollowed-out bamboo. It is conducted in this manner from far-away springs to streams, whence it flows down from terrace to terrace by means of an ingenious system of dykes and vents that are often enough controlled by a well-placed big toe in the mud at the gate of the system.

The arrangement of these rice terraces, their levelling and ditching for irrigation, are almost perfect in symmetry, in beauty of curve, in repetition of pattern. To this beauty there are added the natural colours of the rice at its various stages of growth, so that the rice panorama as a whole forms an illusion of landscape gardening done on a gigantic scale.

From the rice nursery-beds of unbelievably vivid green, native women in bright sarongs prepare to transfer the seedlings to other paddies. Awaiting their coming are fields like silver lakes, so

Sturdiness and picturesque lines characterize the rice granaries of the Torajalands of Celebes, Netherlands East Indies.

smooth that they reflect the nearby palm trees and more distant mountains. In other fields that seem dark and muddy patterns of a crazy quilt, curious old ploughs are drawn by water buffalo (*karbouw*).

Then there are the fields where the grain ripens; and here and there are bamboo perches where, turn and turn about, children from the *kampong*, or compound, are obliged to sit and twitch a network of cords extending across the golden tassels of the crop to frighten away greedy little rice birds.

In still other fields the grain is harvested. Over these blows a dry, sweet-smelling breeze that brings nostalgia to the heart of every foreigner for the waving grain of his own land at harvest time.

The principal export crop of the Indies comes from the rubber trees. In 1940 the exports of rubber reached a value of 332,270,000 guilders. Great numbers of coolies are employed on the plantations to tend the trees and collect the latex. They begin work about five o'clock in the morning and continue until the same hour in the afternoon. There is one 'Sunday' every two weeks, which is called *Hari Besar*. Only on that day does peace and indolence settle over the plantations, engulfing the alien activity of the Dutch *Blandas*, the bosses, the white *Tuans*. *Hari Besar* is a Moslem Holy Day.

There is an art in the cutting of the rubber trees so that the precious latex may run down to the porcelain cups waiting to receive it. The coolies must not slash too deeply, for, if they do, they injure the wood. Yet the cuts must be deep enough to produce a good yield.

* * *

Wild life in the Indies is of great interest. There is the talking bird, or *beo*, often found in cages throughout the land. With black fuselage, yellow undercarriage and orange centre section, this colourful fellow is no more a songster than is a parrot, but he too can be trained to talk.

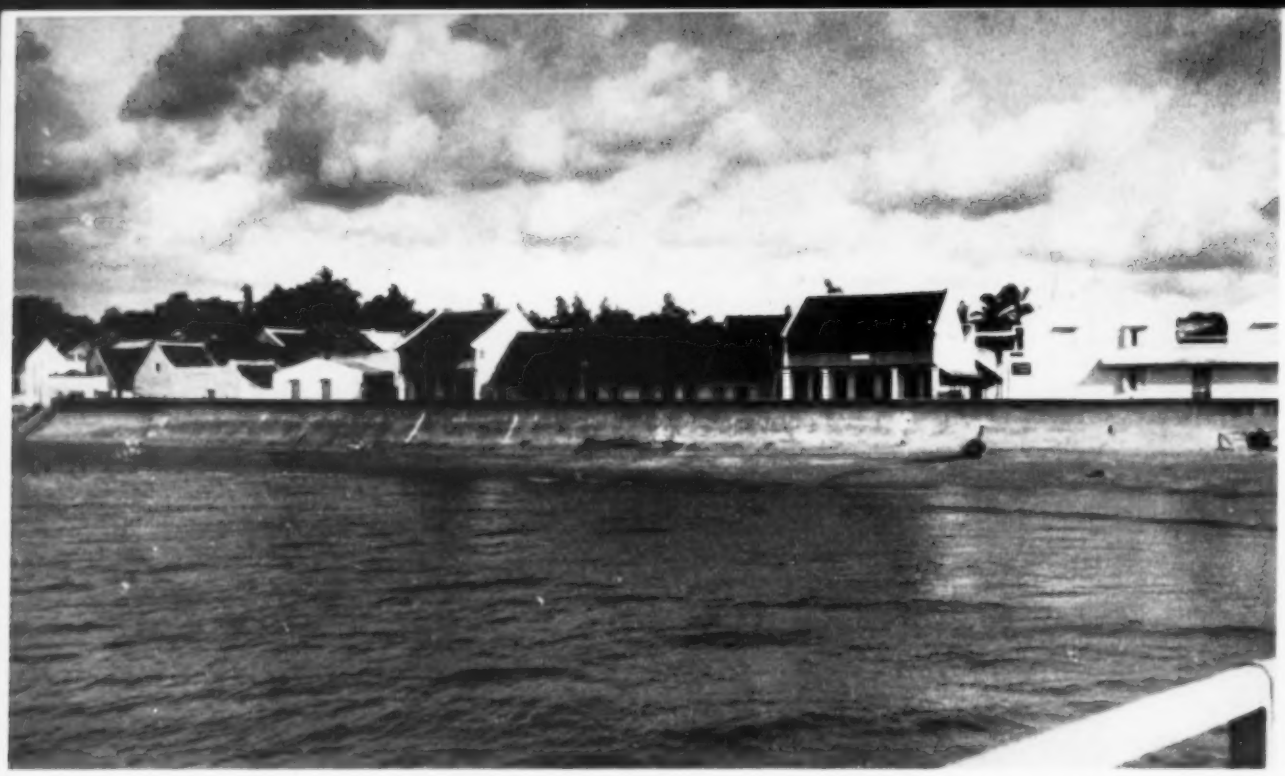
In front of many native homes there will be seen a tall pole, at the top of which, instead of the expected flag, swings a wicker cage housing a dove. Each morning the cage is hoisted to the top of the pole, so that its tenant may have good air and sunlight; and each evening it is lowered for feeding of the dove and its protection during the night.

Jonkheer Dr. A. W. L. Tjarda van Starkenborgh Stachouwer, Governor-General of the Netherlands East Indies

Near the modern Hotel Bali in Den Pasar, a native pigeon fancier who owns a bevy of beautiful pigeons, has become quite famous through the antics of his birds. He releases them for exercise each evening at the cocktail hour. Up they go, more or less in formation, to do their graceful acrobatics. As they fly, an unusual sound effect is achieved by means of bamboo whistles tied around their necks. The intensity of sound varies according to the speed of the birds' flight. This is good musical accompaniment to a whisky-and-soda or a Bols *pahit*.

Occasionally in old Dutch homes are found pet storks, imported from Holland. Swallows abound everywhere, and in decadent Grissee the Chinese use several stately but dilapidated Dutch houses as nesting places for swallows of the kind that build the edible nests beloved of Chinese gourmets.

As in most tropical countries, there is a dearth of song birds, but in the East Indies lives the coppersmith bird at least. He gives a wistful, oft-repeated



The water-front at Koepang on the Island of Timor. Timor is half Dutch and half Portuguese. Portugal's recent protest against Dutch and Australian troop activities in Timor will be remembered (December, 1941)

ooot, ooot, ooot that remains in the grateful memory of any traveller who has heard it.

Apropos of calls, the *gekko*, or tree lizard, has a startlingly human one that sounds like a warning: "Duck you! Duck you!" repeated from four to eight times with diminishing enthusiasm. The *gekko*'s little brother, the *tji-tjak*, a useful fly-catching house lizard found on walls and ceilings all over the Indies, has a similar cry.

* * *

Along the coast of the Java Sea near Samarang or Soerabaja the country is quite flat; and so dense is the population there that one hardly knows where the city ends and the country begins. The road curves through groves of bananas, coco-nuts and bamboo, avenues of casuarina and tamarind trees, fields of sugar cane and citronella. Dominating the landscape are low hills and high mountain ranges, which lie dreaming in equatorial heat that knows no abating mountains lofty yet apparently accessible, crowned with the glory, not of eternal snows, but of warm greenery. Drowsily those mountains await the geologically inclined explorer who may, or may never, get there.

People throng that Javenese ocean highway in thick and endless procession. Brown and yellow men laden like beasts of burden swing along with twin baskets suspended from either end of a pliant, creaking bamboo pole called a *pikoelan*, carried across their shoulders. Women, taciturn and uncomplaining, carry big

The bamboo pipelines and one of those important big toes in the mud

A view of Bandjermasin, South (Dutch) Borneo

baskets on their heads and often children on their hips as well. Still others bear only gaily-coloured Chinese sunshades or pull sheep or goats along by the ears. Everything imaginable travels over that road on the persons of the natives: farm produce, birds in wooden cages, huge stacks of kitchen utensils, lamp shades, tea caddies, feather dusters and even portable "restaurants" containing steaming rice and spicy dainties dear to the palates of all natives.

Mention of the native palate introduces the subject of the famous *rijsttafel*, the standard midday meal of the Dutch East Indies. In every hotel, be it city or country, *rijsttafel* is served. At such a place as the Hotel des Indes in Batavia *rijsttafel* is almost a ritual — the ritual of a repast for Gargantua.

Led by a *mandoer*, or head waiter, who proudly carries a huge bowl of steaming rice, some fifteen or twenty waiters in Indian file convey the *rijsttafel* to the table. Each one bears in either hand a dish of food. To his foundation of rice, served flaky and grain-dry as nowhere but in the East, each diner adds something from every one of the thirty or forty little dishes brought by the boys. There is soup — *sajoer curry* and *sajoer lodeh* — chicken, beef and meat croquettes; fried bananas and hot peanuts; salted duck eggs and fried hen eggs; skewers of spiced meats; chopped onions and cucumbers; various chutneys and many other ingredients utterly unobtainable on the American continent, all mixed together in a huge bowl.

Last of all comes the dish of pinkish *kroepoek*, which is made from rice flour and prawns into great crumbly, thinnish, flattish brittle cakes eaten instead of bread.

All of this stupendous, astounding meal is washed down, in flagrant disregard of girth control, with a quart or so of good Dutch ale or beer.

* * *

Just as in Holland, so in the Dutch East Indies, the cyclist is ubiquitous, dangerous, inevitable. In between, and everywhere, and around, he goes at an

Bandoeng street scene, Java. It is interesting to note the Japanese shops and the proportion of bicycles to automobiles.

View of a tea plantation in the Dutch East Indies at the time when the leaf is ready for plucking.

alarming speed. Stout Dutch business men pedal solemnly to offices, sitting erect and proper; buxom *mevrouwen*, equally erect and proper, push their way to market with tow-headed youngsters in rattan baskets aft and possibly dogs or other pets in rattan baskets fore. Cheerful native houseboys in starched white *badjoe-badjoe* and *sarong* ride along, taking childish pride in their bikes and electric accessories. Little native women in garments as gay as butterfly wings travel behind the houseboys on the baggage carriers. Children bestraddle the handlebars or main crossbars. Army squads and even regimental bands ride along on military cycle manoeuvres bearing machine guns or musical instruments, each man guiding his cycle with one hand or one knee. They do it in the Indies as they did it in Rotterdam and Amsterdam, before May 10, 1940. There are even taxi-tricyclists, who carry two fares each. The bicycle is something that could reasonably be a part of the Dutch escutcheon, for the Dutch are historically a nation that has *stepped forward while sitting down*, just as a cyclist does.

In all this wheel traffic the *sado* must not be ignored. The *sado* is a small, two-wheeled pony carriage, the capacity of which is limited only by the weight that, if loaded into the carriage, would lift the pony off the ground. The driver of the *sado* sets his Mohammedan cap at a rakish angle, sits cross-legged on one side of the vehicle and manipulates** an oversized bicycle bell with one of his big toes. With one hand he steers his steed through the motley crowds and cracks a whip with the other, chattering the while in low-voiced, musical Malay with his native passengers.

No half-starved, bare-ribbed little horse is the Javanese creature; he is lively and strong and well fed and could pull a weight greater than a *sado*, or even a *grobak*, which is a huge, lumbering, two-wheeled freight cart usually drawn by oxen, water buffalo or Burma bulls.

In the mid-Java plantation country seemingly endless processions of such *grobak* carts, having high sides, thatch roofs and open ends, pass along so laden

**Actuates, or even pedipulates, according to the reader's choice of word. — R.T.

An expanse of *sawah*, or rice paddy, land, Mid-Java

with sugar cane that the stalks reach forward almost to the animals' heads and project so far astern as practically to drag on the ground.

Everywhere by the wayside are little groups of natives who, to all appearances, seldom move far away. They are village sages who squat in the shade of vast banyan trees discussing the rice market; or they are perhaps dreamers holding mute conference while stroking the backs of fighting cocks; or they may be members of a *gamelan* band, which is composed of numerous players of curious instruments and gongs, who play just for their own amusement. Naked babies, yellow *kampong* dogs and bob-tailed cats gambol forever in the dust beside all of these, like the permanent stagecraft of varying scenes.

In the bazaars of the towns, amid the booths and stalls and odoriferous merchandise, hundreds of buyers and sellers mill about, shouting and gesticulating as they haggle.

All of this teeming life, this pullulating effervescence, is seen against a wondrously colourful backdrop of temples and huts, of *kenarii*, hibiscus and allamanda trees, of flowers of all kinds growing lushly. The houses of the better class of natives, of the Chinese and the Europeans, are white or yellow with roofs of red tiles. Even the thatched cabins of the rice field workers, half hidden as they are beneath bamboo or banana, are not unsightly. City streets, even in shopping districts, are bordered with trees. In the residential sections there are parkways of bushes and flowers. The banks of the rivers are cultivated like lawns and edged with flaming *poinciana-regia* trees that have lace-like leaves and scarlet blossoms. Australian pines, tall palms and spreading banyans lend familiar beauty to a very rich landscape.

The Netherlands East Indies are lovely lands. The Dutch have been good colonizers, encouraging marriage among Hollanders and natives and so achieving considerable social harmony in a mixed population, whose fortunes have been guided by intelligent Governorship. A tempting dish, indeed, for the Japanese aggressors.

Telephone service is being provided for military camps, flying schools, and war industries which are springing up throughout the Dominion. This typical scene inside a group flight operating office shows how the movement of aircraft is checked by telephone.

FLYING AND THE TELEPHONE

A Survey of the Telephone's Contribution to Recent Aviation Advances

by **H. G. OWEN**

ON February 23, 1909, the first flying machine in Canada, the *Silver Dart*, piloted by J. A. McCurdy, flew half a mile at the speed of forty miles an hour about thirty feet above the ice of the Bras d'Or lakes near Baddeck, Nova Scotia.

Behind that venture were names now well known in the flying world — F. W. "Casey" Baldwin, Glenn Curtis, and Thomas Selfridge. Also a contributor was the inventor of the telephone, Alexander Graham Bell, and his wife, in whose laboratory at Baddeck the machine was designed.

Since that time, telephone research has continued to play a part in the development of flying. Through the work of Bell Telephone Laboratories, successors to Bell's original attic workshop, the present system of two-way radio communication between planes in flight and the ground was developed. When this system was being tried out during the late twenties, a newspaper man on the Laboratories' test plane called up his editor and said, "Hello, Chief! I'm talking to you by telephone from a plane flying 1,500 feet in the air!" Great was his chagrin to hear the editor shout across the office, "Jones is drunk again!".

Transmitters and receivers have since been developed for nearly every type of plane now in the air. The most recent development is the throat microphone for combat pilots used by the United States Army Air Corps. Strapped to the pilot's throat, this microphone picks up his words directly from his vocal cords, preventing interference from the roar of the engine.

The voice has little inflection and sounds "throaty", but it is fully intelligible. Of course, when the pilot swallows, a distinct "gulp" is audible in the receivers! The most important result, however, is that the user does not have to hold the microphone up to his mouth, and both hands are always free for other work.

In a system recently installed at LaGuardia Field, in New York City, reports made by pilots over the communication system are made to actuate an azimuth indicator to give the direction of the planes from the airport. As a pilot talks, a spot of light on the end of a cathode ray tube gives the bearing of the plane by its direction from the centre of a compass rose. It is expected that the installation of this direction finder will be extended to other airports, when the exact position of a plane can be determined by triangulation.

Another development of the Laboratories — a magnetic-tape sound recording device known as the Mirrophone — has been used to assist link training instructors in the Royal Canadian Air Force to improve the clarity of their speech. Instructors must be able to speak distinctly, because they have to give orders to the students in the links through a microphone. On the Mirrophone, a recording can be made and repeated back immediately, so that the instructors can hear their own voices as the students hear them. The recordings can be wiped off by a flick of a switch, and as many re-recordings made as are necessary, so that the users can try phrases over and over until the result are satisfactory.

The telephone itself has played no minor role in the amazing growth of the Commonwealth Air Training Scheme.

Upon the outbreak of war in September, 1939, the Government at Ottawa began reaching for the telephone to speed the national mobilization, and hasn't let go since. During the past three years, the capital's telephone system has actually doubled in size. Six additions to the Government's private branch exchange equipment have more than doubled its capacity, and a further extension is under way. The city's telephone dial building is being enlarged as much again as its present size. The volume of long distance calls out of Ottawa is twice as high as in pre-war months. As quickly as new wires can be strung and new equipment installed, additional voice channels are being placed in service to the Maritimes, Montreal, Toronto, the West, and to Washington, D.C.

In answer to all this calling from Parliament Hill, war-time establishments of every kind have been springing up across the Dominion, and telephone service has been required for each of them. The Bell Telephone Company of Canada, which operates in Ontario and Quebec only, has installed about 600 private branch exchanges for military, naval, and air force establishments, for war service organizations, and for war industrial plants throughout the two provinces since the beginning of the war.

Here are some of the many problems the telephone companies may encounter in providing service to a typical flying training school. In 1939, the site may have been a wild strawberry field, a muskeg patch, or an uncleared forest. However inaccessible it may seem, the installation of a telephone is probably the first requirement of the contractor for the swift organization of supplies and working forces. Despite the fact that many of these sites are in places where no telephone facilities existed previously, demands for service must be, and invariably have been, met promptly. As one high government official put it:

> "In the communication field, the help of the Bell Telephone Company has been invaluable. They have not awaited our instructions, but have anticipated them in a wonderful way by preparing connections as soon as the sites were selected, so that by the time the orders were placed, we found the connecting lines available."

Among the many devices evolved by Bell Telephone Laboratories for military use is a new microphone by means of which the pilots of fighting planes can communicate both with the ground and with other planes in flight. The microphone fits around the pilot's throat, so that his voice can be heard without interference from the roar of the engine.

A tiny speck of green light moving across a screen of frosted glass in the Control Tower of the Administration Building at LaGuardia Field, New York, gives the bearing of a plane in flight from the airport. The indicator is actuated by the signals received over the plane-to-ground radio system as the pilot makes his report.

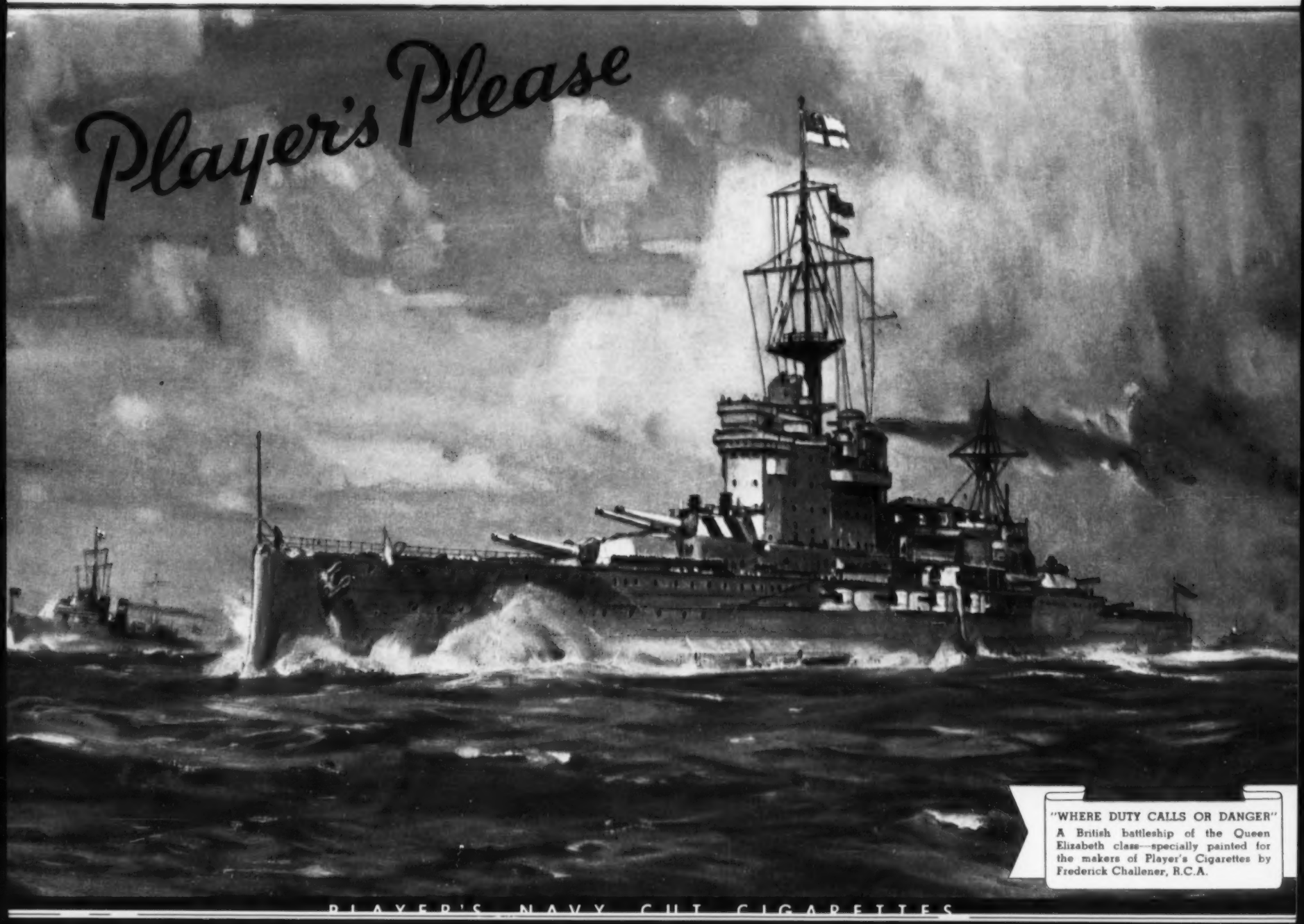
Requirements call, not only for speed, but also for special types of construction. Because overhead lines near an airport might be hazardous to the landing of planes, especially at night, sections of cable may have to be placed underground.

When the construction of the buildings has been completed, a switchboard or small dial exchange is installed, with lines to the administration building, hangars, personnel quarters, and radio range station. Individual lines connecting directly with the central office will serve each of the several public telephones for the use of the men. A telephone should be available at every convenient point throughout the field, so that the least possible delay may be encountered in obtaining telephone service in an emergency.

There may also be a separate telephone system for a bombing range. For safety reasons, such ranges are located some distance from the airport itself, and usually near a lake, so that the targets may be floated on the water. The telephone system installed for one bombing range required no less than eighty miles of wire, most of it on entirely new pole line.

The ordinary telephone system has also been successfully employed as an aid to air-defence forces in war games held by the United States Army, and it is reported that similar methods are in use in Europe. Specially-chosen civilian observers — many of whom are women — keep a constant lookout for enemy planes. When a squadron is sighted, the observer telephones military headquarters. There, a signal lamp lights up the observer's position on a big wall map. As the planes continue their course, and other observers report, the route of the flight is written in lights on the map. The defending planes do not have to go up until they know the shortest route to cut off the invaders. Time, energy, and valuable fuel are saved. During the war games, although the observers were scattered over a wide area including several southern states, their telephoned reports did not interfere in the least with the ordinary long distance service.

Alexander Graham Bell, the inventor of the telephone, was one of a group of far-sighted men who designed and built the first flying machine in Canada. The *Silver Dart* made her first successful flight near Baddeck, Nova Scotia, on February 23, 1909. The picture shows her being readied for a later flight near Petawawa, when she crashed.


Player's Please
"WHERE DUTY CALLS OR DANGER"
A British battleship of the Queen Elizabeth class—specially painted for the makers of Player's Cigarettes by Frederick Challener, R.C.A.
PLAYER'S NAVY CUT CIGARETTES

THE CANADIAN GEOGRAPHICAL SOCIETY

ANNUAL GENERAL MEETING - 1942

The thirteenth Annual General Meeting of The Canadian Geographical Society was held on February 25th in the Lecture Hall, Victoria Memorial Museum, Ottawa. Mr. G. J. Desbarats, President, presiding.

In reviewing the progress of the Society for the year 1942, the Chairman stated that as in the previous three years, funds were again allocated for the conduct of Geographical Research projects and that the first University graduate to receive the Society studentship award, Miss Nadine Hooper, completed her post-graduate studies at the University of Toronto under the direction of Dr. Griffith Taylor, and, following submission of her thesis "Toronto, a City in Urban Geography", had been granted her M. A. degree. Miss Hooper is now a member of the Ottawa staff of the Society. In the same year, Mr. Lloyd Reeds, also a University of Toronto graduate, received a Society studentship award, contributing to his post-graduate studies in Geography under the direction of Dr. Taylor. Mr. Desbarats stated that the Society's second documentary film, entitled "Portage", had been completed during the year, following two years in production, and that this two-reel kodachrome sound film, produced under the direction of Mr. and Mrs. F. R. Crawley, with the assistance of a consulting committee composed of Dean Mackenzie, Dr. C. M. Barbeau and Dr. L. J. Burpee, would be given its premiere showing at the close of the business session. In the dissemination of geographical knowledge, the Society's Journal and reprints had again played a major part. The Society had been privileged to send copies of the Journal to our forces overseas, adding thousands to those sent the previous year, and, in addition, some six thousand copies had been sent to schools. During the year, over 158 thousand copies of the Journal and over 75 thousand reprints from same had been published. In pursuance of the Society's editorial policy of recording appropriately events of particular Canadian significance, special attention had again been given to the preparation and publication of articles related to the Canadian war effort and others dealing with countries and regions in the theatre of war. The President added that the service which the Society was rendering in this field of war effort had been highly commended. During the year, five lectures had been delivered to capacity audiences, two by Rosita Forbes, one, entitled "Panama to Patagonia", under the auspices of the Society, and the other, "Libya and the Caucusus", under the joint auspices of the Society and the National Council of Education. The other three lectures accompanied by motion pictures, included "The Peoples of Canada", directed by Gordon Sparling and presented by Mr. John Grierson, "Canada Moves North" by Mr. Richard Finnie, and "British Columbia" by Mlle Marguerite de Gusseme and Mr. W. A. Macdonald.

The Chairman expressed the deep regret of the Society in recording the passing of Miss Eleanor Garvin, who, as an original member of the Society's staff, had given unstintingly of her services for eleven years to promote the welfare of the Society.

Tribute was paid by the Chairman to all those who had contributed to the success of the Society during the year. The members were urged to increase the membership strength of the Society by speaking to friends and through the extension of gift memberships. He made special mention of the work of his fellow Directors, to the Chairman and members of the various standing and special committees for the time and attention they had so freely given to the Society affairs, and to the Executive Secretary and Editor, Gordon Dallyn, for his tireless services during the year.

The appreciation of the Society was expressed to the Canadian Press for the many references in their editorial columns to articles published in the Journal and consequent extension of the aims and object of the Society.

The following Directors, whose term of office expired this year, were re-elected to the Board: Lt.-Gen. A. G. L. McNaughton, Dr. Charles Camsell, Mr. C. G. Cowan, Mr. O. M. Biggar, Mr. F. H. Peters, Ottawa; Dr. Griffith Taylor, Mr. Gilbert LaBine, Toronto; Hon. A. E. Arsenault, Charlottetown; Hon. W. A. Buchanan, Lethbridge; Dr. Augustin Frigon, Montreal.

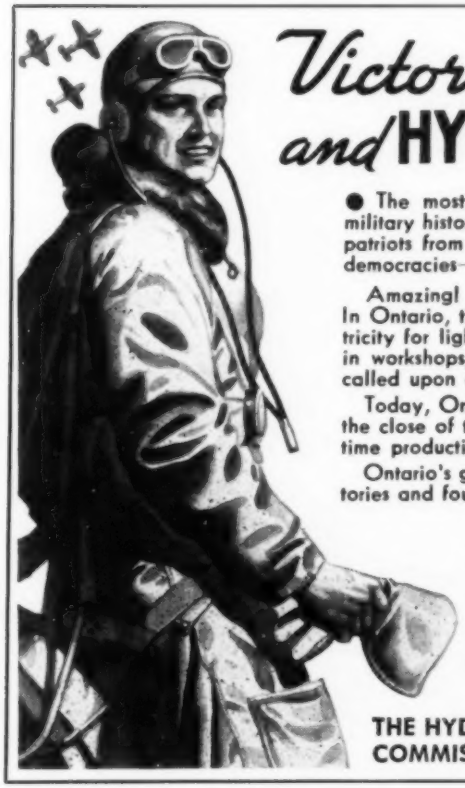
In his official welcome to General McNaughton, Vice-President of the Society, Mr. Desbarats said that General McNaughton had "won golden opinions for himself and was carrying high the name of Canada". In reply, General McNaughton said: "I fully appreciate the warmth of my welcome to-night. The Annual Meeting of The Canadian Geographical Society is a meeting I would not care to miss. I have been keenly interested in the Society for many years and am naturally gratified at the progress it continues to make, as shown by the President's report, and from my own month-to-month reading of the Society's publication. I am deeply indebted to the Society for the copies of the Journal which come to me each month for distribution to our forces overseas. These copies are very much appreciated — particularly in the hospitals, and I hope that the Society will see fit to double the number coming over. Members receiving the Society's Journal obtain more than full value for their membership dues. I would appeal to all Canadians to support the Society."

Immediately after the showing of the Society's film, "Portage", and "Habitant Life on the Lower St. Lawrence" (National Film Board's picture, with commentary by Mrs. Laura C. Boulton, who directed the picture), the Board of Directors met and elected the following Officers for 1942: Honorary Presidents: Dr. Charles Camsell, Ottawa, and Dr. J. B. Tyrrell, Toronto; President: Mr. George J. Desbarats, Ottawa; Vice-Presidents: Lt.-Gen. A. G. L. McNaughton; Honourable W. A. Buchanan, Lethbridge; Dr. R. C. Wallace, Kingston, and Mr. J. A. Wilson, Ottawa; Honorary Secretary: Mr. E. S. Martindale, Ottawa; Honorary Treasurer: Mr. K. G. Chipman, Ottawa; Honorary Counsel: Mr. O. M. Biggar, K.C., Ottawa.

EDITOR'S NOTE-BOOK

Ralph P. Bell, contributor of an authoritative up-to-the minute article on "Canada's Aircraft Industry" graduated from Mount Allison University, Sackville, New Brunswick; the first President of which was Dr. Humphrey Pickard, the writer's great grandfather. Various parts of Canada have contributed in the setting for the author's practical business experience: in Western Canada he was engaged in machinery, while, for twenty years he was identified concurrently with the lumbering, fishing and shipping industries in Nova Scotia. Mr. Bell's experience combined with a forceful personality led to his appointment as a member of the Executive Committee of the Department of Munitions and Supply in June, 1940, and his present appointment as Director-General of Aircraft Production in August, 1940. The record of a remarkable Canadian achievement which his article presents is further emphasized when compared with the record written by Fergus Grant (now Squadron Leader, R.C.A.F.) of the Society's staff, and published in the Journal in August, 1938.

Renée Tallantyre, writer of "Against the Dutch East Indian Backdrop" is of English descent. Like many of his countrymen, he has lived in many parts of the world, and has had a wide variety of experience. Readers will recall Mr. Tallantyre's informative article "Portugal" (August 1941 Journal), the fruits of first-hand experience just previous to Hitler's invasion of European countries. The present article also treats of first-hand impressions following a visit to that country previous to the Japanese invasion. As one



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member of the Royal Dutch Airlines, who examined the manuscript puts it, "the article is most instructive and should be of great interest to many, since it contains little-known details of life in the Dutch East Indies. Reading it, my wife and I grew homesick, as we had spent the past six years in the Islands."

Strength in Membership

The attention of all members of the Society and of readers of the Journal is directed to the report of the Society's thirteenth Annual General Meeting. Mr. Desbarats, President of the Society, made a special request for each member to take an active part in building up the Society's membership strength. The message of General McNaughton, quoted in the report closes with these words, "I would appeal to all Canadians to support the Society".

CONTENTS—FUTURE ISSUES

Subjects which will be presented with graphic illustrations and maps during the next six months include:

RESEARCH TOUCHES THE NORTH—Canada's Tar Sand Resources
THE DRAMA OF BACON
CANADA'S SHIPBUILDING INDUSTRY
MECHANICAL TRANSPORT AND TANKS
HANDICRAFT IN QUEBEC
REPUBLIC OF HONDURAS
THE FAEROE ISLANDS
GUNS FOR OVERSEAS
THE BAHAMAS
CANADA'S FAR NORTHERN TERRITORIES
BIRDS OF CANADA'S ATLANTIC COAST
WITH THE CANADIAN CORPS OVERSEAS
IRAQ AND IRAN
THROUGH A QUEENSLAND JUNGLE
SOME NOTES ON BELEM, PARA
ADAPTATION OF CROPS IN ONTARIO
FUR FARMING IN MANITOBA
LAPLAND

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in
THE CANADIAN GEOGRAPHICAL SOCIETY
Membership includes annual subscription to the Society's monthly publication
CANADIAN GEOGRAPHICAL JOURNAL

(*Detach here or nominate by letter if preferred.*)

THE CANADIAN GEOGRAPHICAL SOCIETY,
49 Metcalfe Street, Ottawa, Canada.

I wish to nominate the following for membership in The Canadian Geographical Society:

(1) Name ..... (Occupation) .....
Address .....
(2) Name ..... (Occupation) .....
Address .....
Name of Nominating Member .....
Address .....

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